

CLAIMS

WHAT IS CLAIMED IS:

1. An apparatus for locating a well tool in a cased borehole, comprising:

a slip adapted to engage the cased borehole;

5 a cam engaging said slip;

a stop member disposed on said slip;

a bore extending through said slip and cam; and

the apparatus having no sealing engagement with the cased borehole.

10 2. The apparatus of claim 1 further including an orientation member disposed on said slip to angularly orient the well tool in the cased borehole.

3. The apparatus of claim 1 wherein said slip has only a sufficient engagement with the cased borehole to allow orientation without rotation of said slip.

15 4. The apparatus of claim 1 wherein said bore has a diameter which is no more than $\frac{3}{4}$ of an inch less than the diameter of the cased borehole.

5. The apparatus of claim 1 wherein the apparatus does not include a seal bore.

20 6. An apparatus to locate a well tool in a cased borehole, comprising:
an engaging member adapted to engage the cased borehole;

a wedge member engaging said engaging member to force said engaging member against the cased borehole;

a locking member engaging said wedge member to maintain said wedge member in engagement with said engaging member;

5 an orientation member disposed on said engaging member;

said engaging member, wedge member, locking member, and orientation member forming a bore through the apparatus; and

the apparatus providing no sealing engagement with the cased borehole.

10 7. The apparatus of claim 6 wherein the apparatus has no setting mechanism.

8. The apparatus of claim 6 wherein the apparatus has no latch.

9. The apparatus of claim 6 wherein the cased borehole has a diameter and said bore has a
15 diameter which is no more than one inch less than the diameter of the cased borehole.

10. The apparatus of claim 6 wherein said orientation member locates the depth of the well tool
in the cased borehole.

20 11. The apparatus of claim 6 wherein said orientation member includes a surface which
angularly orients the well tool within the cased borehole.

12. An assembly to locate a well tool in a cased borehole, comprising:

a reference member having first and second slips and first and second cones
engaging said first and second slips respectively;
said first and second cones having overlapping portions;
a ratchet member disposed between said overlapping portions allowing the
separation of said cones but preventing their contraction; and
5 an orientation surface mounted on said first or said second slip.

13. The assembly of claim 12 wherein said ratchet member is disposed on one of said first and
second cones and the other of said first and second cones having wickers, said ratchet member
10 having ratchet teeth engaging said wickers.

14. The assembly of claim 12 wherein said orientation surface includes an inclined surface with
an apex and a slot adapted to receive an orientation key.

15. 15. The assembly of claim 12 wherein said orientation surface is an orientation key.

16. The assembly of claim 12 further including an expansion joint on one of said first and
second cones.

20 17. The assembly of claim 12 further including a setting member to separate said first and
second cones.

18. The assembly of claim 17 wherein said setting member includes piston members releasably attached to said cones, said pistons being hydraulically actuated to move said cones into engagement with said slips.

5 19. The assembly of claim 17 wherein said setting member removably supports one of said cones.

20. An assembly for performing a well operation with a well tool in a cased borehole, comprising:

10 a reference member having a predetermined depth and angular orientation within the cased borehole;

 said reference member having a first engagement member engaging the casing;

 an anchor member disposed adjacent said reference member;

 said anchor member having a second engagement member engaging the casing; and

15 said anchor member withstanding the compression, tension, and torque of the well tool during the well operation.

21. The assembly of claim 20 wherein said reference member is not latched to said anchor member.

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22. A method of installing a well tool in a cased borehole for performing a well operation, comprising:

lowering a reference member and an anchor member with the well tool into the cased borehole;

setting the reference member within the cased borehole;

then setting the anchor member in the cased borehole; and

5 performing the well operation with the well tool.

23. The method of claim 22 further comprising the anchor member withstanding all of the compression, tension and torque generated during the well operation.

10 24 The method of claim 22 comprising:

lowering a whipstock and a mill with the reference member and anchor member;

and

detaching the mill from the whipstock and milling a window into the cased borehole.

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25. A method for setting a marker in the borehole of a well, comprising:

running a reference member and orientation tool into the borehole;

determining the orientation of the reference member;

rotating the reference member;

20 repeating the determining and rotating steps until the reference member is properly oriented in the borehole;

permanently setting the reference member within the borehole;

lowering a locator member with anchor and well tool into the borehole;

orienting the locator member on an orientation member on the reference member;
setting the anchor member; and
performing a well operation with the well tool.

5 26. A method for milling a window in a cased wellbore, comprising:

disposing into the wellbore a reference member, a reference member setting tool and a sidetracking assembly including an anchor, whipstock and a mill adapted to mill the window in the cased wellbore;

determining the orientation of the reference member within the cased wellbore;

10 operating the setting tool, either before or after determining the orientation of the reference member, to set the reference member within the cased wellbore;

setting the anchor; and

milling the window in the cased wellbore.

15 27. The method of claim 26 wherein the setting tool is released from the reference member after the reference member is set.

28. The method of claim 26 wherein the setting tool comprises actuating a piston assembly within the setting tool causing a camming member in the reference member to expand slips into engagement with the cased borehole.

29. The method of claim 28 wherein the anchor includes a setting tool and the anchor setting tool sets the anchor in the cased borehole.

30. The method of claim 28 wherein the setting tool sets the anchor.

31. The method of claim 26 further comprising

5 releasing the setting tool from the reference member; and
removing the setting tool from the wellbore.

32. A method of conducting sidetracking operations, comprising:

conducting a first run into a borehole to:

10 set a reference member,

orient a whipstock,

set an anchor within the borehole, and

mill a window in the borehole,

conducting a second run into the borehole to:

15 land and orient a deflector within the borehole, and

conduct lateral operations within the borehole.

33. The method of claim 32 wherein a locator member is mounted on the deflector and engages the reference member to orient the deflector within the borehole using an orienting profile.

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34. An apparatus for conducting sidetracking operations within a borehole comprising:

a reference member;

a setting tool affixed to an anchor assembly for setting the reference member within the borehole, the anchor assembly including an anchor and a setting tool for setting the anchor; and

5 a whipstock affixed to the packer assembly for use in milling a window in a portion of the borehole.

35. The apparatus of claim 34 wherein the reference member setting tool, whipstock and anchor assembly are selectively removable from the borehole.

10 36. The apparatus of claim 34 wherein the reference member setting tool comprises a reciprocable piston member that is actuated to set a cam slips into engagement with the cased borehole to secure the reference member within the borehole.

37. An apparatus for locating a well tool in a casing in a borehole, comprising:
15 an insertable member adapted to engage the cased borehole;
a stop member disposed on said member;
a bore extending through said member; and
said bore sized to receive the next consecutive sized casing.